ET Summit 2023

Presented by

Heat Pump Water Heater Market Transformation

Drivers and Projects of Growth in the Residential and Commercial Sector

nbi new buildings institute

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AWHI ADVANCED WATER HEATING INITIATIVE™

Partners and Collaborators

AWHi ADVANCED WATER HEATING INITIATIVE™

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Participants

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American Council for an Energy Efficient Economy

Ariston Thermo USA

Association for Energy Affordability

BC Hydro

Beyond Efficiency

Bradford White Water Heaters

Building Decarbonization Coalition (BDC)

California Energy Commission (CEC)

Carbon Free Silicon Valley

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San Diego Gas & Electric (SDG&E)

Silicon Valley Clean Energy

Sonoma Clean Power

South Coast Air Quality Management District

StopWaste

Skycentrics

Turnbull Energy

U.S. Department of Energy

Washington State University Energy Program

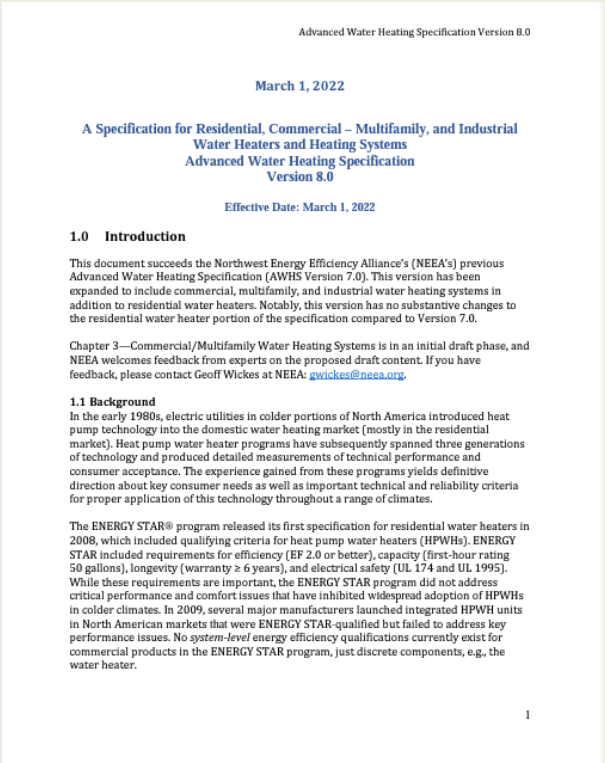
https://www.advancedwaterheatinginitiative.org/

Drivers of Residential HPWH Adoption

Building Codes Air Quality GHG Emissions	Water Heater Standards	Technology Development + Cost Reduction
SBCC Washington State Building Code Council	ENERGY STAR	
CALIFORNIA AIR RESOURCES BOARD; BAY AREA AIR QUALITY MANAGEMENT DISTRICT	DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA	
		INFLATION REDUCTION ACT OF 2022

Commercial Heat Pump Water Heaters Standards + Technology Development

- Advanced Water Heating Specification
- Qualified Products List
- Commercial HPWH Manufacturers Action Council



Advanced Water Heating Specification Version 8.0

March 1, 2022

A Specification for Residential, Commercial – Multifamily, and Industrial Water Heaters and Heating Systems
Advanced Water Heating Specification
Version 8.0

Effective Date: March 1, 2022

1.0 Introduction

This document succeeds the Northwest Energy Efficiency Alliance's (NEEA's) previous Advanced Water Heating Specification (AWHS Version 7.0). This version has been expanded to include commercial, multifamily, and industrial water heating systems in addition to residential water heaters. Notably, this version has no substantive changes to the residential water heater portion of the specification compared to Version 7.0.

Chapter 3—Commercial/Multifamily Water Heating Systems is in an initial draft phase, and NEEA welcomes feedback from experts on the proposed draft content. If you have feedback, please contact Geoff Wickes at NEEA: gwickes@neea.org.

1.1 Background

In the early 1980s, electric utilities in colder portions of North America introduced heat pump technology into the domestic water heating market (mostly in the residential market). Heat pump water heater programs have subsequently spanned three generations of technology and produced detailed measurements of technical performance and consumer acceptance. The experience gained from these programs yields definitive direction about key consumer needs as well as important technical and reliability criteria for proper application of this technology throughout a range of climates.

The ENERGY STAR® program released its first specification for residential water heaters in 2008, which included qualifying criteria for heat pump water heaters (HPWHs). ENERGY STAR included requirements for efficiency (EF 2.0 or better), capacity (first-hour rating 50 gallons), longevity (warranty ≥ 6 years), and electrical safety (UL 174 and UL 1995). While these requirements are important, the ENERGY STAR program did not address critical performance and comfort issues that have inhibited widespread adoption of HPWHs in colder climates. In 2009, several major manufacturers launched integrated HPWH units in North American markets that were ENERGY STAR-qualified but failed to address key performance issues. No *system-level* energy efficiency qualifications currently exist for commercial products in the ENERGY STAR program, just discrete components, e.g., the water heater.

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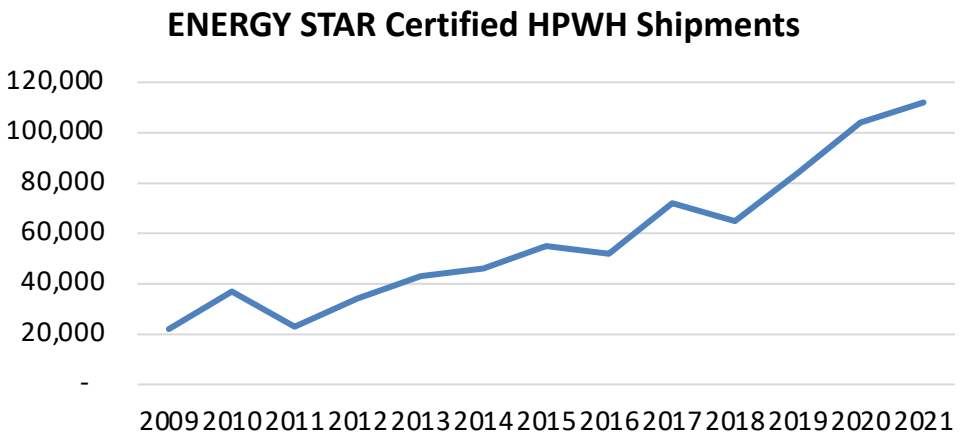
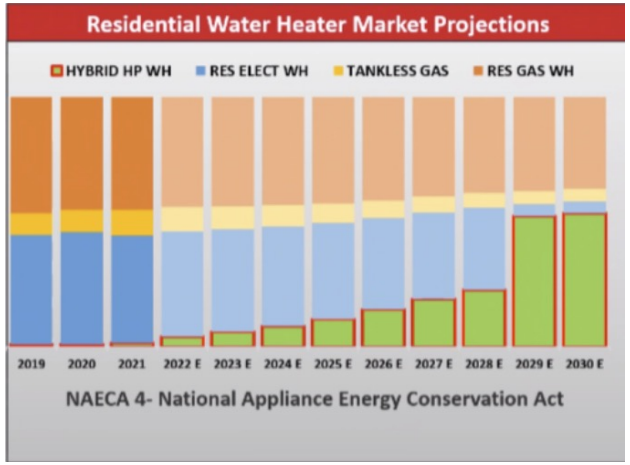
Residential HPWH Past and Projected Growth





Commercial HPWH Past and Projected Growth

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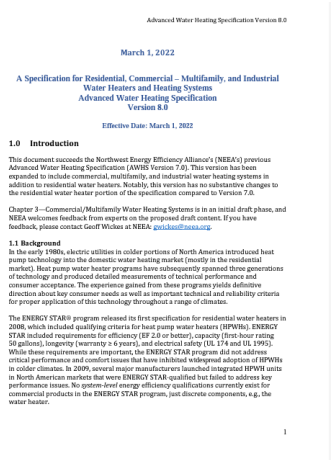

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AWHI's Vision

Efficient heat pumps are
universal in all water heating applications by 2030

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AWHi ADVANCED WATER HEATING INITIATIVE™